

CLAIMS

What is claimed is:

1. A method for managing configuration data for a system, comprising:

generating a chain description data set that specifies an order in a configuration chain of configurable devices in the system and identifies configuration data sets associated with the configurable devices; and

generating a system identifier value and associating the system identifier value with the chain description data set.

2. The method of claim 1, wherein the configurable devices comprise a programmable logic device.

3. The method of claim 1, further comprising:

generating an archive including the configuration data sets, chain description data set, and system identifier value.

4. The method of claim 3, further comprising compressing data in the archive.

5. The method of claim 3, further comprising:

extracting from the archive the configuration data sets, chain description data set, and system identifier value in response to a user control;

determining a target system identifier value of a target system;

comparing the target system identifier value to the system identifier value extracted from the archive; and

if the target system identifier value does not match the system identifier value extracted from the archive, preventing configuration of the target system with the extracted configuration data sets.

6. The method of claim 5, further comprising:  
if the target system identifier value matches the system identifier value read from the archive,  
generating a configuration bitstream from the extracted configuration data sets identified by, and in the order specified in, the chain description data set; and  
configuring the target system with the configuration bitstream.

7. The method of claim 6, wherein each configuration data set is stored in a respective data file, the method further comprising:

creating a hierarchy of directories;  
storing each data file in one of the directories in the hierarchy;

storing the hierarchy of directories and data files in the archive; and

wherein the extracting step includes extracting the hierarchy of directories and data files from the archive and replicating the hierarchy of directories and data files in a user-selected storage location.

8. The method of claim 6, wherein the step of generating the system identifier value comprises:

reading values of identification codes from each of the configurable devices; and

generating the system identifier value as a function of the values of the identifications codes from the configurable devices.

9. The method of claim 8, wherein the step of reading comprises:

reading the value of a first register in each of the configurable devices, wherein the state of each first register is a non-programmable value.

10. The method of claim 9, wherein the step of reading further comprises:

reading the value of a second register in each of the configurable devices, wherein each second register is user-programmable.

11. The method of claim 8, wherein the step of reading comprises:

inputting a control code to each of the configurable devices

outputting the values of the identification codes serially from at least one of the configurable devices in response to the control code.

12. The method of claim 8, wherein the step of reading further comprises:

reading values from registers in the configurable devices, wherein each register is user-programmable.

13. The method of claim 12, further comprising:

storing in the register of the at least one configurable device a checksum value derived from configuration data used in configuring the at least one configurable device.

14. The method of claim 13, wherein the step of generating the system identifier value includes concatenating the values.

15. The method of claim 12, wherein the configurable devices are arranged and coupled in a scan chain, and the function used in generating the system identifier value is further a function of respective positions of the configurable devices in the scan chain.

16. The method of claim 8, wherein the step of generating the system identifier value includes concatenating the values.

17. The method of claim 8, wherein the configurable devices are arranged and coupled in a scan chain, and the function used in generating the system identifier value is further a function of respective positions of the configurable devices in the scan chain.

18. The method of claim 8, wherein the step of reading comprises:

inputting a control code to at least one of the configurable devices;

outputting the values of the identification codes serially from a boundary-scan register in at least one of the configurable devices in response to the control code.

19. The method of claim 18, wherein the control code is a boundary-scan SAMPLE instruction.

20. The method of claim 18, wherein the control code is a boundary-scan EXTEST instruction.

21. The method of claim 18, wherein the boundary-scan register is one of an IDCODE register and a USERCODE register.

22. The method of claim 8, wherein the value of an identification code from a configurable device is configuration data read back from the configurable device.

23. The method of claim 22, wherein the step of generating the system identifier value comprises:

generating checksum values from the configuration data; and  
generating the system identifier as a function of the checksum values.

24. The method of claim 8, wherein the system includes a plurality of non-volatile memories coupled to the configurable devices, the configurable devices are boundary-scan accessible, and the reading step includes reading the values of the

identification codes from the plurality of non-volatile memories.

25. An apparatus for managing configuration data for a system, comprising:

- means for generating a chain description data set that specifies an order in a configuration chain of configurable devices in the system and identifies configuration data sets associated with the configurable devices;

- means for generating a system identifier value and associating the system identifier value with the chain description data set; and

- means for generating an archive including the configuration data sets, chain description data set, and system identifier value.

26. The apparatus of claim 25, further comprising:

- means for extracting from the archive the configuration data sets, chain description data set, and system identifier value in response to a user control;

- means for determining a target system identifier value of a target system;

- means for comparing the target system identifier value to the system identifier value extracted from the archive; and

- means for preventing configuration of the target system with the extracted configuration data sets in response to the target system identifier value being unequal to the system identifier value extracted from the archive.

27. The apparatus of claim 26, further comprising:

- means, responsive to the target system identifier value being equal to the system identifier value read from the archive, for generating a configuration bitstream from the extracted configuration data sets identified by, and in the order specified in, the chain description data set and for configuring the target system with the configuration bitstream.

28. An arrangement for managing configuration data for a system, comprising:

- a software tool hosted on a data processing arrangement;
- a system interface coupled to the tool and to the system;

and

wherein the tool is configured to,

- generate a chain description data set that specifies an order in a configuration chain of configurable devices in the system and identifies configuration data sets associated with the configurable devices;

- generate a system identifier value and associating the system identifier value with the chain description data set; and

- generate an archive including the configuration data sets, chain description data set, and system identifier value.

29. The arrangement of claim 28, wherein the tool is further configured to:

- extract, in response to a user-input control, from the archive the configuration data sets, chain description data set, and system identifier value in response to a user control;

- determine a target system identifier value of a target system;

- compare the target system identifier value to the system identifier value extracted from the archive; and

- if the target system identifier value does not match the system identifier value extracted from the archive, prevent configuration of the target system with the extracted configuration data sets.

30. The arrangement of claim 29, wherein the tool is further configured to:

- if the target system identifier value matches the system identifier value read from the archive,

- generate a configuration bitstream from the extracted configuration data sets identified by, and in the order

specified in, the chain description data set; and  
configure the target system with the configuration  
bitstream.